

1.0 PURPOSE

This Closure Plan and Post-Closure Care Plan (Closure Plan) is submitted in accordance with the Consent Order, dated October 12, 1990 and contains the procedures to be followed during the closure of the entire North Chicago Refiners and Smelters (NCRS) Site as one unit including all alleged Hazardous Waste Management Units (HWMUs) which includes the North Surface Impoundment (Settling Pond) and waste piles as identified in the Consent Order.

This Closure Plan is intended to: (1) describe the facility; (2) provide a summary of the results of the Preliminary Facility Investigation (PFI); (3) identify and quantify contaminants; (4) present the proposed ground water monitoring plan; (5) describe the proposed activities for closure; (6) provide a proposed closure schedule; and (7) detail post-closure activities.

US EPA RECORDS CENTER REGION 5



400203

2.0 DESCRIPTION OF FACILITY

2.1 Location of Facility

The NCRS Site is located at 2028 Sheridan Road in an industrial section of North Chicago, Illinois. The facility is situated in the northwestern corner of Section 4, T44N, R12E (Figure 2-1). The site occupies an 18-acre parcel bounded by the Elgin, Joliet, and Eastern Railroad on the north; Sheridan Road on the east; 22nd Street on the south; and FanSteel, Inc. property on the west (Figure 2-2).

2.2 Facility Description

The NCRS Site and surrounding properties are part of an industrial complex that began operations at the turn of the century. According to a 1921 plat of survey, the Vulcan Louisville Smelting Company (Vulcan) was located on much of what is today the NCRS facility. Railroad right-of-ways, tailing piles, a steel galvanizing facility, coal yards, and railroad car barns completed the industrial character of the neighborhood as of 1921. Lanyon Zinc & Paint is believed to have preceded Vulcan's ownership of a portion of the subject property.

NCRS began operating a secondary copper and brass recovery facility on a major portion of the present site in 1941. Scrap copper and brass in many forms are imported from off-site sources, melted and refined in furnaces, and then poured into ingots that are shipped to customers. A process flow diagram for the ingot production operation is included in Figure 2-3 and process/storm water flow diagrams are included in Figures 2-4 and 2-5. NCRS falls under Standard Industrial Classification (SIC) Code 3341 and has approximately 200 employees. Although the operation has grown, the original manufacturing process has not changed significantly over the years.

The NCRS facility has been upgraded several times in advance of and in response to environmental regulations, through: (1) the installation of several baghouses to reduce air pollution emissions; (2) the improvement of a closed-loop, cooling water recirculating system; and (3) the implementation of surface run-off containment and control measures to reduce surface water discharges from the site.

On January 23, 1986, NCRS received National Pollutant Discharge Emission Systems (NPDES) Permit No. 0002755 from the IEPA. The Permit was subsequently modified on January 26, 1987 and February 25, 1987. According to the Permit, NCRS has two authorized discharges designated as Outfall 001 (Reservoir Outfall) and Outfall 002 (Storm Water Runoff). Effluent from Outfall 001 consists of high level emergency overflow from a reservoir that is part of the water recirculation system, and is only permitted during extreme circumstances such as a 25-year, 24-hour rainfall event. The flow from Outfall 001 discharges through Outfall 002, which contains storm water runoff from the site and ground water from the shallow water bearing unit. Daily and monthly discharge limits for certain substances found in the effluent from Outfall 001 and 002 are specified in the NPDES Permit. Under the Consent Order and an NPDES permit which is under appeal, NCRS also is monitoring storm water discharge from Outfalls 003 and 004.

2.3 Facility Site Plan

The detailed facility site plan map is provided in Figure 2-2. The site layout has remained essentially unchanged since the acquisition by NCRS, with the exception of the construction of building additions and the paving of parking lots.

14.0 POST-CLOSURE CARE

This Closure Plan includes a Post-Closure Plan in accordance with 35 IAC 725, Subpart G and may also require a post-closure permit from the IEPA.

The post-closure care for the site will begin after completion of each phase of the closure of the entire NCRS Site and after IEPA's approval of the certification of closure and will continue for 30 years after that date.

In accordance with 35 IAC 725, Subpart F (Ground Water Monitoring), NCRS will carry out the ground water monitoring program outlined in the Appendix during the closure and post-closure care periods. NCRS will obtain and analyze samples from the installed ground water monitoring system quarterly for the first year and on a semiannual basis for a minimum of four years. The details of the sampling and analysis requirements of the ground water monitoring program are provided in the Appendix. Furthermore, as described in the Appendix, if necessary, NCRS will prepare a ground water quality assessment program in accordance with 35 IAC 725.193 and will keep records and submit reports to the IEPA in accordance with 35 IAC 725.194.

In accordance with 35 IAC 725 Subpart K (Surface Impoundments), NCRS will perform inspections and perform routine maintenance to maintain the integrity and effectiveness of the final cover (asphalt paving) including making repairs to the cover as necessary. A formal inspection of each paved area will be performed semiannually during the months of April and October and will consider specific problems such as settling, subsidence, erosion, and cracking. The results of this inspection will be recorded on the inspection logs provided as Attachments 14-1 and 14-2 and will be kept on file at NCRS. NCRS will implement repairs as soon as possible after problems are identified and a seal coat topping will be placed at a

minimum of 5 year intervals to maintain the impermeable nature of the surface. A summary of estimated costs for Post-Closure Care activities is provided as Table 14-1.

In accordance with 35 IAC 725, Subpart M (Land Treatment), NCRS will continue to control the storm water runoff and shallow subsurface ground water by monitoring and managing water levels in the east and west ditches. NCRS will continue its documentation of water levels within both ditches.

15.0 LOCATION DOCUMENTATION OF SURFACE FILL

Prior to the submission of the certification of closure, NCRS will submit to any local zoning authority, to the County Recorder, and the IEPA, a survey plat indicating the location and dimensions of the covered surface fill with respect to permanently surveyed bench marks. This plat will be prepared and certified by a professional land surveyor. The plats filed with any local zoning authority and the County Recorder must contain a prominently displayed note, that states the owner's obligation to restrict the disturbance of the surface fill.

Within 60 days after IEPA's approval of certification of closure, NCRS will submit to the County Recorder, the local zoning authority, and the IEPA a record of the type, location, and quantity of surface fill covered as part of the closure activities at the site. Within 60 days after IEPA approval of certification of closure, NCRS will record, in accordance with Illinois law, a notation on the deed to the facility property or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property that:

- o The land contains surface fill;
- o Its use is restricted under 35 IAC 725, Subpart G; and
- o The survey plat and record of the type, location, and quantity of surface fill covered at the facility required by 35 IAC 725.216 and 725.219(a) have been filed with the County Recorder, any local zoning authority, and the IEPA.

Within 60 days after IEPA's approval of the certification of closure, NCRS will submit a certification that they have recorded the notations specified above and will provide a copy of the documents in which the notation has been placed to the IEPA.

Within 60 days after the completion of the post-closure care period for the site, NCRS will submit to the IEPA by registered mail, a certification that the post-closure care period for the site was performed in accordance with the specifications in the approved Post-Closure Plan. This certification will be signed by NCRS and an independent, registered Professional Engineer. Documentation supporting the independent, registered Professional Engineer's certification will be furnished to the agency upon request until the IEPA releases NCRS from the financial assurance requirements for post-closure care.

TABLE 14-1

**POST-CLOSURE CARE
COST ESTIMATE⁽¹⁾
NORTH CHICAGO REFINERS AND SMELTERS
NORTH CHICAGO, ILLINOIS**

Task	Unit Cost (\$)	Total Cost (\$)
<ul style="list-style-type: none"> Seal coating with tar pitch emulsion (once every five years) <ul style="list-style-type: none"> - Area A: 12,000 sq.ft. x 0.10/sq.ft. 1,200 - Area B: 28,000 sq.ft. x 0.10/sq.ft. 2,800 - Area C: 36,000 sq.ft. x 0.10/sq.ft. 3,600 - Area D: 20,000 sq.ft. x 0.10/sq.ft. 2,000 <p style="text-align: right;">Subtotal per event:</p>	9,600	57,600
<ul style="list-style-type: none"> Pavement maintenance <ul style="list-style-type: none"> - Crack: sealing 100 - Subsidence repair 1000 - Erosion repair 1000 <p style="text-align: right;">Subtotal:</p>	2,100	
<ul style="list-style-type: none"> Pavement inspection⁽²⁾ 	0	0
<ul style="list-style-type: none"> Ground water monitoring (per annual event) (If required) <ul style="list-style-type: none"> - Sampling (mobilization/demobilization + sampling) 3,800 <ul style="list-style-type: none"> - Labor 900 - Expenses - Analytical (11 wells, 1 field blank, 1 duplicate, 1 matrix spike, 1 matrix spike duplicate for dissolved metals, plus boron) 4,000 - Data Validation - Reporting <ul style="list-style-type: none"> - Labor 5,000 - Expenses 500 <p style="text-align: right;">Subtotal:</p>	15,700	
30 years of annual ground water sampling (30 events)		471,000
GRAND TOTAL:		530,700

Notes:

- (1) All estimates calculated to 1992 costs. No inflation factors have been incorporated.
- (2) Pavement inspection will be conducted by NCRS personnel.

**PAVEMENT INSPECTION LOG
POST-CLOSURE CARE
NORTH CHICAGO REFINERS AND SMELTERS
NORTH CHICAGO, ILLINOIS**

2) _____

Signature of Inspecting Personnel: _____

ATTACHMENT 14-2

**CORRECTIVE ACTION FORM
POST-CLOSURE CARE
NORTH CHICAGO REFINERS AND SMELTERS
NORTH CHICAGO, ILLINOIS**

I. Date: _____ Time: _____

Inspecting Personnel and Affiliation:

Observing Personnel and Affiliation:

1) _____

1) _____

2) _____

2) _____

II. For any positive responses noted above, identify possible solution(s) to problem(s):

Solution Selected:

Date Solution Implemented:

Signature of Inspecting Personnel: _____